FACT SHEET FOR NPDES PERMIT WA0042145
KAPOWSIN MEATS, INC.

TABLE OF CONTENTS

INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System (NPDES) of permits, which is administered by the Environmental Protection Agency (EPA). The EPA has authorized the state of Washington to administer the NPDES permit program. Chapter 90.48 Revised Code of Washington (RCW) defines the Department of Ecology's (Department) authority and obligations in administering the wastewater discharge permit program.

The regulations adopted by the State include procedures for issuing permits (Chapter 173-220 Washington Administrative Code [WAC]), water quality criteria for surface and ground waters (Chapters 173-201A and 200 WAC), and sediment management standards (Chapter 173-204 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit. One of the requirements (WAC 173-220-060) for issuing a permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least thirty days before the permit is issued (WAC 173-220-050). The fact sheet and draft permit are available for review (see Appendix A--Public Involvement of the fact sheet for more detail on the Public Notice procedures).

The fact sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in this review have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. The fact sheet will not be revised. Comments and the resultant changes to the permit will be summarized in Appendix C--Response to Comments.

GENERAL INFORMATION	
Applicant	Kapowsin Meats, Inc.
Facility Name and Address	Kapowsin Meats, Inc. 29401 118th Avenue East Graham, WA 98338
Type of Facility:	Meat Packing Plant
SIC Code	2011
Discharge Location	Waterbody name: South Creek (tributary to Muck Creek) Latitude: 46° 59' 22" N Longitude: 122° 16' 30" W.
Water Body ID Number	WA-11-1010

Figure 1. General Location of Kapowsin Meats, Inc.

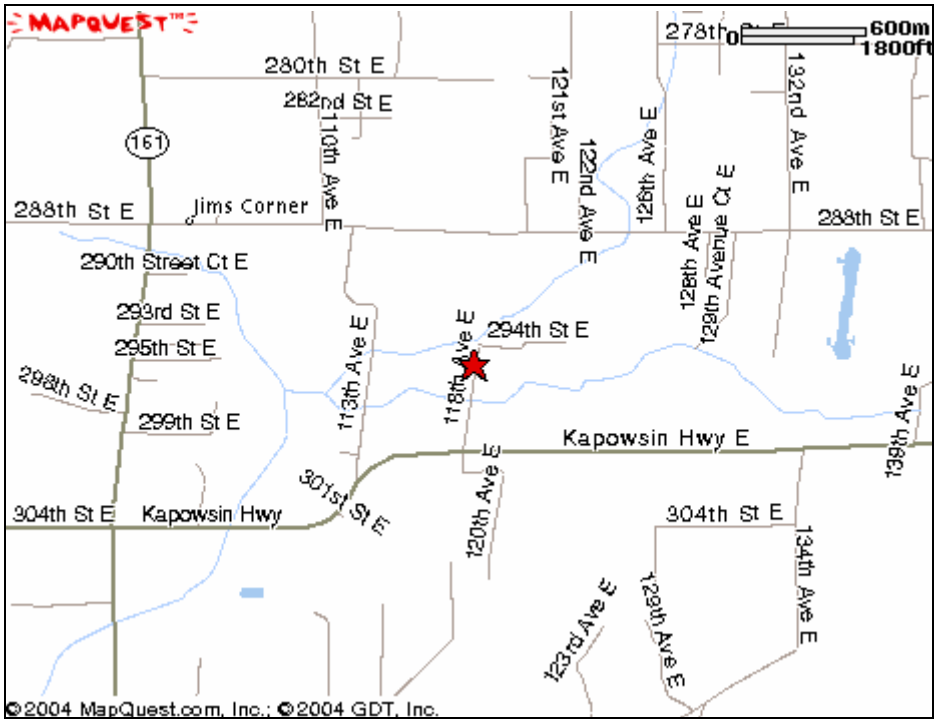

Figure 2. Detailed Location of Kapowsin Meats, Inc.

BACKGROUND INFORMATION

DESCRIPTION OF THE FACILITY

HISTORY

Kapowsin Meats, Inc. has been located at this site since the 1940s. After a complaint was investigated on February 19, 1997, the current owner of the facility began improvements to bring the various wastewater sources up to compliance. The site has been modified to route floodwater away from the facility. Waste streams generated by the livestock holding pens and truck washing have been eliminated. The remaining wastewater generated by cleanup of the processing facilities has been routed to a treatment facility described in the **Engineering Report, Slaughterhouse and Meat Packing Plant Wastewater Treatment Facility for Kapowsin Meats Inc.**, AHR Engineers, Fife, Washington, April 15, 1999. Currently there are plans to make some modifications to the original treatment facility to provide some additional capacity, to address issues with storing treated effluent on-site when creek flows are below 1 cfs, to address concerns about lagoon leakage at the site, and to implement a dry weather period land application of Hog Wash Pen Lagoon and SBR effluent. These modifications are described in the **Revised Engineering Report – Slaughterhouse and Meat Packaging Plant Wastewater Treatment Facility for Kapowsin Meats, Inc.**, Achor, Inc., May 27, 2005.

INDUSTRIAL PROCESS

Kapowsin Meats is a hog (and small quantities of goats and lambs) slaughterhouse and meat packing facility for wholesale distribution. Live animals are delivered twice a week and kept in holding pens. Animal carcasses are eviscerated, skinned, cleaned, inspected by USDA, refrigerated, and then shipped by truck to wholesalers and butchers. Hair, skin, intestines, bones, meat scraps, and blood are sold or disposed of off-site and do not enter the wastewater waste stream. Blood is collected and sold; scraps and other sold materials are shipped to rendering plants and landfills. The average number of hogs killed per week is anticipated to increase to 600. The maximum number of hogs slaughtered per day is anticipated to increase to 200.

There is no seasonal variation and no increase in production is anticipated. Operations take place 5 days per week, one shift per day, 52 weeks per year with all federal holidays observed. The property of the facility covers about seven acres. Approximately ten people are permanently employed full time with a few more temporary people hired when needed. The only chemicals stored at the plant in significant quantities are sodium hypochlorite and sodium hydroxide that are used for cleanup. Water use is minimized consistent with maintaining proper sanitation. Approximately 4,000 gallons of water will be used daily from an on-site well. Wastewater treatment is provided by a sequencing batch reactor (SBR) followed by a recirculating gravel filter. Treated wastewater will be retained on-site during dry weather months when the South Creek flowrate drops below 1 cfs. During these periods, treated effluent will be diverted into the SBR effluent lagoon and the Hog Pen Wash Lagoon (HPWL).

Every year, the HPWL will be drawn down to allow for a visual inspection. The HPWL wastewater will be combined with SBR treated effluent at approximately a 4:1 ratio and will be land applied to no less than 22.5 acres of forested and grass lands. There is approximately 30 acres available for land application for the facility's use.

In order to address future antidegradation issues regarding groundwater quality, the SBR effluent lagoon is also required to undergo an annual inspection to assess the integrity of its plastic liner.

DISCHARGE OUTFALL

The outfall is a 1-inch diameter plastic pipe discharging through a concrete headwall into South Creek, which is a tributary of Muck Creek, and ultimately a tributary of the Nisqually River. The flow of treated effluent discharged into South Creek is maintained at about 10 gallons per minute to minimize any adverse impacts that may occur. Furthermore, discharge to South Creek is not authorized to occur when the receiving water flow falls below 1.0 cubic feet per second; this is roughly equivalent to a stage elevation of 649.8 feet. Depth of water flow during this period is approximately 3-inches.

GROUNDWATER

The facility is situated over a shallow recessional outwash aquifer that overlies till. The aquifer is likely hydraulically connected to South Creek. The depth to groundwater is reported to be two to four feet. The well log for the onsite water-supply well indicates that the recessional aquifer material consists of ten feet of sand. The water-supply well obtains water from beneath the till at a depth of 115 feet.

Leakage from the SBR treated effluent holding lagoon and the Hog Pen Wash Lagoon is a potential source of contamination for groundwater. Effluent limitations for the SBR effluent are set to match the groundwater quality criteria. This essentially requires the facility to meet groundwater quality criteria while the treated effluent is stored in the lagoon. Any leakage from the lagoon would therefore not be likely to contaminate groundwater.

Both the SBR effluent lagoon and the Hog Pen Wash Lagoon requires an annual inspection to check the integrity of their respective liners. Should any leaks, tears, rips, etc be noticed, it is to be repaired immediately.

This permit also authorizes the application to land of the HPWL wastewater mixed with the SBR effluent. An analysis done revealed that there would be a negligible impact to groundwater quality if the mixture is applied to at least 22.5 acres of land. The designated fields and set backs required are shown in Figure 1 of the permit.

PERMIT STATUS

The previous permit for this facility was the first permit ever issued for the facility and was issued on May 2, 2000. The previous permit placed average monthly and maximum daily effluent limitations on pH, flow, production, BOD_5, TSS, oil and grease, fecal coliform, and ammonia.

An application for permit renewal was submitted to the Department on December 10, 2002, and accepted by the Department on January 3, 2003.

SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

The facility last received an inspection on March 15, 2005.

During the history of the previous permit, the Permittee has remained in compliance based on Discharge Monitoring Reports (DMRs) submitted to the Department from September 2000 through May 2005 and inspections conducted by the Department except for:

- 2 violations of the minimum pH limit of 6.0 in November and December 2000. This is most likely attributed to the start up of the new (at the time) SBR treatment system.
- 4 consecutive violations of the average monthly flow limit of 2,000 gallons from November 2000 to February 2001. This may also be attributed to the start up of the new (at the time) SBR treatment system.

- 1 violation of the maximum daily flow limit of 2,200 gallons in January 2001. This may be attributed to the start up process of the new (at the time) SBR treatment system.
- 1 violation of the average monthly and maximum daily fecal coliform limit of 100 cfu/100 mL in December 2001.
- 2 violations of the average monthly ammonia limit of 15.5 mg/L in March 2004 and December 2004.
- 1 violation of the maximum daily ammonia limit of 22.6 mg/L in March 2004.

In general, the facility has had a good compliance record during the previous permit cycle.

WASTEWATER CHARACTERIZATION

The proposed wastewater discharge is characterized for the regulated parameters shown in Table 1. The values shown are the average of the average monthly values submitted in the DMRs from September 2000 through May 2005.

Table 1: SBR Effluent Characterization

Parameter	Value
Productivity (lbs/day)	16,639
Flow (gpd)	1,883
BOD_5 (lbs/1000 lbs/day)	0.018
TSS (lbs/1000 lbs/day)	0.018
Oil and Grease (mg/L)	0.001
Fecal Coliform	53
Ammonia (mg/L, as N)	3.4
pH (s.u.)	6.8

SEPA COMPLIANCE

This is an existing facility and there are no known State Environmental Policy Act (SEPA) compliance issues at this time.

PROPOSED PERMIT LIMITATIONS

Federal and State regulations require that effluent limitations set forth in a NPDES permit must be either technology- or water quality-based. Technology-based limitations are based upon the treatment methods available to treat specific pollutants. Technology-based limitations are set by regulation or developed on a case-by-case basis (40 CFR 125.3, and Chapter 173-220 WAC). Water quality-based limitations are based upon compliance with the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC), Sediment Quality Standards (Chapter 173-204 WAC) or the National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992). The more

stringent of these two limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

The limits in this permit are based in part on information received in the application. The effluent constituents in the application were evaluated on a technology- and water quality-basis. The limits necessary to meet the rules and regulations of the state of Washington were determined and included in this permit. Ecology does not develop effluent limits for all pollutants that may be reported on the application as present in the effluent**.** Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation**.** Effluent limits are not always developed for pollutants that may be in the discharge but not reported as present in the application. In those circumstances the permit does not authorize discharge of the non-reported pollutants. Effluent discharge conditions may change from the conditions reported in the permit application. If significant changes occur in any constituent, as described in 40 CFR 122.42(a), the Permittee is required to notify the Department of Ecology. The Permittee may be in violation of the permit until the permit is modified to reflect additional discharge of pollutants.

DESIGN CRITERIA

In accordance with WAC 173-220-150 (1)(g), flows or waste loadings shall not exceed approved design criteria.

The design criteria for this treatment facility are taken from an engineering report titled **Revised Engineering Report – Slaughterhouse and Meat Packaging Plant Wastewater Treatment Facility for Kapowsin Meats, Inc.** prepared by Achor, Inc. dated May 27, 2005 and are as follows:

Table 2: Design Capacity for Wastewater Treatment System.

Parameter	Design Quantity
Monthly average flow (max. month)	4,000 gpd
Maximum daily flow	4,200 gpd
Maximum daily production (Live Weight Killed (LWK)	40,000 lbs/day

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

Technology-based effluent limits have been developed for the following pollutants which need to be met before the effluent is discharged to Muck Creek: BOD_5, TSS, oil and grease, and pH.

5-Day Biochemical Demand: The federal effluent limitations and guidelines for Meat and Poultry Products Point Source Category (40 CFR Part 432) Subpart A – Simple Slaughterhouses specifies a base limitation of 0.24 pounds per 1,000 pounds of Live Weight Killed (LWK)/day for the maximum daily limit and 0.12 pounds per 1,000 pounds of LWK/day for the maximum monthly average. Using a maximum daily production of 40,000 lbs/day, the maximum daily and maximum monthly average BOD_5 load allowed to be discharged is calculated to be 9.6 lbs/day and 4.8 lbs/day, respectively. These values were used to establish the BOD_5 limitations established in the permit for Outfall #001. There were no additional BOD_5 limitations that applied under 40 CFR432.12(a)(2), (3), (4), or (5).

Total Suspended Solids (TSS): The federal effluent limitations and guidelines for Meat and Poultry Products Point Source Category (40 CFR Part 432) Subpart A – Simple Slaughterhouses specifies a base limitation of 0.40 pounds per 1,000 pounds of Live Weight Killed (LWK)/day for the maximum daily limit and 0.20 pounds per 1,000 pounds of LWK/day for the maximum monthly average. Using a maximum daily production of 40,000 lbs/day, the maximum daily and maximum monthly average TSS

load allowed to be discharged is calculated to be 16.0 lbs/day and 8.0 lbs/day, respectively. These values were used to establish the TSS limitations established in the permit for Outfall #001. There were no additional TSS limitations that applied under 40 CFR432.12(a)(2), (3), (4), or (5).

Oil and Grease: The federal effluent limitations and guidelines for Meat and Poultry Products Point Source Category (40 CFR Part 432) Subpart A – Simple Slaughterhouses specifies a base limitation of 0.12 pounds per 1,000 pounds of Live Weight Killed (LWK)/day for the maximum daily limit and 0.06 pounds per 1,000 pounds of LWK/day for the maximum monthly average. Using a maximum daily production of 40,000 lbs/day, the maximum daily and maximum monthly average BOD_5 load allowed to be discharged is calculated to be 4.8 lbs/day and 2.4 lbs/day, respectively. These values were used to establish the oil and grease limitations established in the permit for Outfall #001.

pH: The federal effluent limitations and guidelines for Meat and Poultry Products Point Source Category (40 CFR Part 432) defines a general limitation or standard for pH as remaining within the range of 6.0 to 9.0. This technology-based effluent limitation was used and established as the limit in the permit.

SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established Surface Water Quality Standards. The Washington State Surface Water Quality Standards (Chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses of the surface waters of the state. Surface water quality-based effluent limitations may be based on an individual waste load allocation (WLA) or on a WLA developed during a basin wide total maximum daily loading study (TMDL).

NUMERICAL CRITERIA FOR THE PROTECTION OF AQUATIC LIFE

"Numerical" water quality criteria are numerical values set forth in the state of Washington's Water Quality Standards for Surface Waters (Chapter 173-201A WAC). They specify the levels of pollutants allowed in a receiving water while remaining protective of aquatic life. Numerical criteria set forth in the Water Quality Standards are used along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limitations, they must be used in a permit.

NUMERICAL CRITERIA FOR THE PROTECTION OF HUMAN HEALTH

The U.S. EPA has promulgated 91 numeric water quality criteria for the protection of human health that are applicable to Washington State (EPA 1992). These criteria are designed to protect humans from cancer and other disease and are primarily applicable to fish and shellfish consumption and drinking water from surface waters.

NARRATIVE CRITERIA

In addition to numerical criteria, "narrative" water quality criteria (WAC 173-201A-030) limit toxic, radioactive, or deleterious material concentrations below those which have the potential to adversely affect characteristic water uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. Narrative criteria protect the specific beneficial uses of all fresh (WAC 173-201A-130) and marine (WAC 173-201A-140) waters in the state of Washington.

ANTIDEGRADATION

The state of Washington's Antidegradation Policy requires that discharges into a receiving water shall not further degrade the existing water quality of the water body. In cases where the natural conditions of a receiving water are of lower quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. Similarly, when the natural conditions of a receiving water are of higher quality than the criteria assigned, the natural conditions shall be protected. More information on the State Antidegradation Policy can be obtained by referring to WAC 173-201A-070.

The Department has reviewed existing records and is unable to determine if ambient water quality is either higher or lower than the designated classification criteria given in Chapter 173-201A WAC; therefore, the Department will use the designated classification criteria for this water body in the proposed permit. The discharges authorized by this proposed permit should not cause a loss of beneficial uses.

CRITICAL CONDITIONS

Surface water quality-based limits are derived for the waterbody's critical condition, which represents the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or characteristic water body uses.

MIXING ZONES

The Water Quality Standards allow the Department to authorize mixing zones around a point of discharge in establishing surface water quality-based effluent limits. Both "acute" and "chronic" mixing zones may be authorized for pollutants that can have a toxic effect on the aquatic environment near the point of discharge. The concentration of pollutants at the boundary of these mixing zones may not exceed the numerical criteria for that type of zone. Mixing zones can only be authorized for discharges that are receiving all known, available, and reasonable methods of prevention, control and treatment (AKART) and in accordance with other mixing zone requirements of WAC 173-201A-100.

The National Toxics Rule (EPA, 1992) allows the chronic mixing zone to be used to meet human health criteria.

DESCRIPTION OF THE RECEIVING WATER

The facility discharges to South Creek, a tributary of Muck Creek, which is a tributary of the Nisqually River. The receiving water, in the vicinity of the outfall, is designated as a Class A surface water. Characteristic uses include the following:

water supply (domestic, industrial, agricultural); stock watering; fish migration; fish rearing, spawning and harvesting; wildlife habitat; primary contact recreation; sport fishing; boating and aesthetic enjoyment; commerce and navigation. Water quality of this class shall meet or exceed the requirements for all or substantially all uses.

SURFACE WATER QUALITY CRITERIA

Applicable criteria are defined in Chapter 173-201A WAC for aquatic biota. In addition, U.S. EPA has promulgated human health criteria for toxic pollutants (EPA 1992). Criteria for this discharge are summarized below:

Table 3. Applicable Surface Water Quality Criteria.

Fecal Coliforms	100 colonies/100 mL maximum geometric mean
Dissolved Oxygen	8.0 mg/L minimum
Temperature	18 degrees Celsius maximum or incremental increases above background
pH	6.5 to 8.5 standard units
Toxics	No toxics in toxic amounts

South Creek flows into Muck Creek approximately 0.5 miles downstream of the facility. Muck Creek has been categorized for fecal coliform, dissolved oxygen, pH, and temperature as part of the effort to compile the 303(d) list for 2002/2004. Fecal coliform and dissolved oxygen has been listed as pollutants of concern (Category 2) where South Creek flows into Muck Creek. pH and temperature has been listed as meeting water quality standards (Category 1) where South Creek flows into Muck Creek.

CONSIDERATION OF SURFACE WATER QUALITY-BASED LIMITS FOR NUMERIC CRITERIA

Pollutant concentrations in the proposed discharge exceed water quality criteria with technology-based controls which the Department has determined to be AKART. A mixing zone is authorized in accordance with the geometric configuration, flow restriction, and other restrictions for mixing zones in Chapter 173-201A WAC. The maximum boundaries of the acute and chronic mixing zones for SBR effluent lagoon discharges to South Creek (Outfall #001) are defined as follows:

The boundary for the chronic mixing zone is limited by 25 percent of the stream width (0.32 feet). This chronic mixing zone plume length is 0.5 feet. The acute mixing plume length is limited to 10 percent of the chronic mixing zone plume length. The calculated dilution factors using the Department's RIVPLUM5 model is 2.61 and 8.24 for the acute and chronic mixing zones, respectively. The regulation governing this mixing zone is WAC173-201A-100. The mixing zones for this facility were determined in the previous permit and fact sheet.

Pollutants in an effluent may affect the aquatic environment near the point of discharge (near field) or at a considerable distance from the point of discharge (far field). Toxic pollutants, for example, are near-field pollutants--their adverse effects diminish rapidly with mixing in the receiving water. Conversely, a pollutant such as biochemical oxygen demand (BOD) is a far-field pollutant whose adverse effect occurs away from the discharge even after dilution has occurred. Thus, the method of calculating surface water quality-based effluent limits varies with the point at which the pollutant has its maximum effect.

The derivation of surface water quality-based limits also takes into account the variability of the pollutant concentrations in both the effluent and the receiving water.

The critical discharge period is defined by the following flow conditions. The flow of treated effluent discharged into South Creek is maintained at about 10 gallons per minute (gpm) to minimize any adverse impacts that may occur. Furthermore, discharge to South Creek is not authorized to occur when the receiving water flow falls below 1.0 cubic feet per second (cfs); this is roughly equivalent to a stage elevation of 649.8 feet. Depth of water flow during this period is approximately 3-inches.

Fecal Coliform: The limitation placed on fecal coliform in the permit is established to be the same as the standard which is 100 colony forming units/100 mL. This limitation was established in the previous permit and fact sheet and is retained for use in this permit.

Ammonia: The limitation placed on ammonia in the permit was established in the previous permit and fact sheet and is retained for use in this permit. The limitation was based on the calculated water quality criteria and calculated acute and chronic mixing zone dilution factors (See Appendix C of the previous permit's fact sheet).

CONSIDERATION OF GROUNDWATER QUALITY-BASED LIMITS FOR NUMERIC CRITERIA

The Department has promulgated Ground Water Quality Standards (Chapter 173-200 WAC) to protect beneficial uses of ground water. Permits issued by the Department shall be conditioned in such a manner so as not to allow violations of those standards (WAC 173-200-100). The Department believes the Permittee's discharge has the potential to cause a violation of the Ground Water Quality Standards and has imposed the conditions in the permit to address any possible leakage from the SBR effluent lagoon.

Total dissolved solids (TDS): The groundwater quality standard for TDS is 500 mg/L and was used as the effluent limitation for Outfall #001. Any leakage that may occur from this lagoon would already be meeting the groundwater quality criteria and therefore should not be violating the groundwater quality standards.

Nitrate (NO_3): The groundwater quality standard for NO_3 is 10 mg/L and was used as the effluent limitation for Outfall #001. Any leakage that may occur from this lagoon would already be meeting the groundwater quality criteria and therefore should not be violating the groundwater quality standards.

WHOLE EFFLUENT TOXICITY

The Water Quality Standards for Surface Waters require that the effluent not cause toxic effects in the receiving waters. Many toxic pollutants cannot be detected by commonly available detection methods. However, toxicity can be measured directly by exposing living organisms to the wastewater in laboratory tests and measuring the response of the organisms. Toxicity tests measure the aggregate toxicity of the whole effluent, and therefore this approach is called whole effluent toxicity (WET) testing.

Toxicity caused by unidentified pollutants is not expected in the effluent from this discharge as determined by the screening criteria given in Chapter 173-205 WAC. Therefore, no whole effluent toxicity testing is required in this permit. The Department may require effluent toxicity testing in the future if it receives information that toxicity may be present in this effluent.

HUMAN HEALTH

Washington's water quality standards now include 91 numeric health-based criteria that must be considered in NPDES permits. These criteria were promulgated for the state by the U.S. EPA in its National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992).

The Department has determined that the applicant's discharge is unlikely to contain chemicals regulated for human health.

SEDIMENT QUALITY

The Department has promulgated aquatic sediment standards (Chapter 173-204 WAC) to protect aquatic biota and human health. These standards state that the Department may require Permittees to evaluate the potential for the discharge to cause a violation of applicable standards (WAC 173-204-400).

The Department has determined through a review of the discharger characteristics and effluent characteristics that this discharge has no reasonable potential to violate the Sediment Management Standards.

GROUND WATER QUALITY LIMITATIONS

Based on an analysis performed by the Department, 7.5 acres would be sufficient to adequately reduce total dissolved solids (TDS, which is the constraining parameter) to meet groundwater quality standards. However, in order to meet the Permittee's request to not require a groundwater quality monitoring network, it has been determined that if the land application water was distributed evenly across 22.5 acres (a safety factor of 3.0), then there would be a negligible impact of TDS upon groundwater quality. The calculations for determining whether the land application of the Hog Wash Pen Lagoon (HWPL) and SBR effluent mixture could potentially violate groundwater quality standards is provided in Appendix C of this fact sheet.

COMPARISON OF EFFLUENT LIMITS WITH THE EXISTING PERMIT ISSUED MAY 2, 2000

Existing Limits	Proposed Limits
Flow – 2,000 gpd (Average monthly limit)/2,200 gpd (Maximum daily limit)	Removed and placed flow criteria under Section S5 of the Permit. Flow criteria was increased to allow increased production at the facility.
Production – 20,000 lbs/day (Average monthly limit)/34,000 lbs/day (Maximum daily limit)	Removed and placed production criteria under Section S5 of the Permit. Production criteria was increased to allow increased production at the facility.
BOD_5 – 0.12 lbs/1,000 lbs LWK (Average monthly limit)/0.24 lbs/1,000 lbs LWK (Maximum daily limit)	BOD_5 was revised to be based solely on the maximum production rate allowable under this permit on a pounds per day basis. The new limitations are 4.8 lbs/day on an average monthly basis, and 9.6 on a maximum daily basis.
TSS – 0.20 lbs/1,000 lbs LWK (Average monthly limit)/0.40 lbs/1,000 lbs LWK (Maximum daily limit)	TSS was revised to be based solely on the maximum production rate allowable under this permit on a pounds per day basis. The new limitations are 8.0 lbs/day on an average monthly basis, and 16.0 on a maximum daily basis.
Oil and Grease – 0.06 lbs/1,000 lbs LWK (Average monthly limit)/0.12 lbs/1,000 lbs LWK (Maximum daily limit)	Oil and grease was revised to be based solely on the maximum production rate allowable under this permit on a pounds per day basis. The new limitations are 2.4 lbs/day on an average monthly basis, and 4.8 on a maximum daily basis.
pH – between 6.0 and 9.0 s.u.	same
Fecal Coliform – 100 cfu/100 mL (average monthly limit and maximum daily limit)	Removed the average monthly limit of 100 cfu/100 mL
Ammonia – 15.5 mg/L (Average monthly limit)/22.6 mg/L (Maximum daily limit)	same
Total Dissolved Solids – None	An average monthly limit of 500 mg/L has been placed on Outfall #001
Nitrate – None	An average monthly limit of 10 mg/L has been placed on Outfall #001
Hog Wash Pen Lagoon and SBR effluent mixture application rate to land – None	Required an annual land application report to be submitted summarizing the results of the monitoring requirements in Special Condition S7 and requires that the application be covered uniformly across, at a minimum, 22.5 acres of land.

MONITORING REQUIREMENTS

Monitoring, recording, and reporting are required (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and the effluent limitations are being achieved.

The monitoring schedule is detailed in the proposed permit under Condition S2. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

LAB ACCREDITATION

With the exception of certain parameters the permit requires all monitoring data to be prepared by a laboratory registered or accredited under the provisions of Chapter 173-50 WAC, *Accreditation of Environmental Laboratories.*

OTHER PERMIT CONDITIONS

REPORTING AND RECORDKEEPING

The conditions of Special Condition S3 are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-220-210).

SOLID WASTE PLAN

The Department has determined that the Permittee has a potential to cause pollution of the waters of the state from leachate of solid waste.

This proposed permit requires, under the authority of RCW 90.48.080, that the Permittee update the solid waste plan designed to prevent solid waste from causing pollution of the waters of the state. The plan must be submitted to the local permitting agency for approval, if necessary, and to the Department.

GENERAL CONDITIONS

General Conditions are based directly on state and federal law and regulations and have been standardized for all individual industrial NPDES permits issued by the Department.

PERMIT ISSUANCE PROCEDURES

PERMIT MODIFICATIONS

The Department may modify this permit to impose numerical limitations, if necessary to meet Water Quality Standards for Surface Waters, Sediment Quality Standards, or Water Quality Standards for Ground Waters, based on new information obtained from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

The Department may also modify this permit as a result of new or amended state or federal regulations.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to control toxics, protect human health, aquatic life, and the beneficial uses of waters of the state of Washington. The Department proposes that this proposed

permit be issued for a period of less than 5 years. This is done so that this permit will remain in the normal permit cycle designated for the South Puget Sound Basin Water Quality Management Area. As such this permit will expire June 30, 2009.

REFERENCES FOR TEXT AND APPENDICES

Achor, Inc. **Revised Engineering Report – Slaughterhouse and Meat Packaging Plant Wastewater Treatment Facility for Kapowsin Meats, Inc.** May 27, 2005.

AHR Engineers, Inc. **Engineering Report – Slaughterhouse and Meat Packaging Plant Wastewater Treatment Facility for Kapowsin Meats, Inc.** April 15, 1999 (revised July 26, 1999).

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Environmental Protection Agency. **Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water**. EPA/600/6-85/002a. 1985.

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Washington State Department of Ecology. Laws and Regulations. http://www.ecy.wa.gov/laws-rules/index.html

Washington State Department of Ecology. Permit and Wastewater Related Information. http://www.ecy.wa.gov/programs/wq/wastewater/index.html

Wright, R.M., and A.J. McDonnell. "In-stream Deoxygenation Rate Prediction." **Journal Environmental Engineering Division, ASCE**. 105(EE2). (Cited in EPA 1985 op.cit.). 1979.

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to reissue a permit to the applicant listed on page 1 of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public notice of application was published on May 16, 2004 and May 23, 2004 in the Tacoma News Tribune to inform the public that an application had been submitted and to invite comment on the reissuance of this permit.

The Department will publish a Public Notice of Draft (PNOD) on October 10, 2005, in the Dispatch to inform the public that a draft permit and fact sheet are available for review. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Industrial Unit Permit Coordinator
Department of Ecology
Southwest Regional Office
P. O. Box 47775
Olympia, WA 98504-7775

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the thirty (30) day comment period to the address above. The request for a hearing shall indicate the interest of the party and reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least thirty (30) days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

Comments should reference specific text followed by proposed modification or concern when possible. Comments may address technical issues, accuracy and completeness of information, the scope of the facility's proposed coverage, adequacy of environmental protection, permit conditions, or any other concern that would result from issuance of this permit.

The Department will consider all comments received within thirty (30) days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, (360) 407-6289, or by writing to the address listed above.

This permit and fact sheet were written by John Diamant, P.E.

APPENDIX B--GLOSSARY

Acute Toxicity--The lethal effect of a compound on an organism that occurs in a short period of time, usually 48 to 96 hours.

AKART-- An acronym for "all known, available, and reasonable methods of treatment".

Ambient Water Quality--The existing environmental condition of the water in a receiving water body.

Ammonia--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Average Monthly Discharge Limitation --The average of the measured values obtained over a calendar month's time.

Best Management Practices (BMPs)--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD_5--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD_5 is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass--The intentional diversion of waste streams from any portion of a treatment facility.

Chlorine--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic Toxicity--The effect of a compound on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Clean Water Act (CWA)--The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Compliance Inspection - Without Sampling--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling--A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Additional sampling may be conducted.

Composite Sample--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots.

Construction Activity--Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

Continuous Monitoring –Uninterrupted, unless otherwise noted in the permit.

Critical Condition--The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Dilution Factor--A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the percent effluent fraction e.g., a dilution factor of 10 means the effluent comprises 10 percent by volume and the receiving water 90 percent.

Engineering Report--A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal Coliform Bacteria--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab Sample--A single sample or measurement taken at a specific time or over as short period of time as is feasible.

Industrial Wastewater--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Major Facility--A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Maximum Daily Discharge Limitation--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Method Detection Level (MDL)--The minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

Minor Facility--A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Mixing Zone--An area that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in state regulations (Chapter 173-201A WAC).

National Pollutant Discharge Elimination System (NPDES)--The NPDES (Section 402 of the Clean Water Act) is the Federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the State of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both State and Federal laws.

pH--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Quantitation Level (QL)-- A calculated value five times the MDL (method detection level).

Responsible Corporate Officer-- A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or have gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures (40 CFR 122.22).

Technology-based Effluent Limit--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Suspended Solids (TSS)--Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

State Waters--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Upset--An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water Quality-based Effluent Limit--A limit on the concentration of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into a receiving water.

APPENDIX C—TECHNICAL CALCULATIONS

Kapowsin Meats
Agronomic Assumptions and Calculations

Estimated N Uptake Capability:		Area	N Uptake
Orchard Grass	240lbs-N/ac	1.7 ac	408 lbs-N
Douglas Fir	150 lbs-N/ac	19 ac	2850 lbs-N
		Total=	3258 lbs-N

N Applications:
Main Lagoon
4000 gpd x 61 days @ 9.2 mg/L N = 18.7 lbs-N
Hog Pen Wash Lagoon (HPWL)
65000 gallons @ 311 mg/L = 168.7 lbs-N
Total = 187.4 lbs-N

TDS Applications:
Main Lagoon
4000 gpd x 61d @ 1000mg/L = 2036.4 lbs-TDS
HPWL
65000 g @ 1325 mg/L =718.8 lbs-TDS
Total = 2755 lbs-TDS

Estimated Effects on Groundwater Quality Using Mass Balance
Input:
Annual Recharge = 14.6 in/yr (from water balance)
Aquifer Properties:
Kh= 3 ft/d; m= 7 ft; i= 0.0050; Width= 1200 ft; Background = 100 mg/L

Conclusion (from Mass Balance Spreadsheet):
Downgradient G/W Concentration= 101 mg/L or less if 7.5 ac or greater receives application.

APPENDIX D—RESPONSE TO COMMENTS

Comments received via e-mail November 9, 2005, from Heather Trim from People For Puget Sound.

Comment 1. - A mixing zone should not be allowed for such a small waterbody. A 0.5 foot long mixing zone is impossible to monitor and really is in essence an end of the pipe location. In addition, because this waterbody is impaired, this discharge should be regulated at the end of the pipe.

Response 1. - Mixing zones can be authorized for Permittees that meet the definition for all known and reasonable methods of treatment (AKART) at the discretion of the Department. The mixing zone itself is not required to be monitored. The fact that the mixing zone is small supports the Department's opinion that the mixing zone would sufficiently protect the receiving water. Furthermore, verification with the 2002/2004 303(d) list shows that there are no parameters listed under Category 5 – Requires a TMDL for Muck Creek. If you have data which shows that the waterbody is impaired, please submit it to the Department of Ecology, Attention Ken Koch. It is too late for this data to be considered for the 2002/2004 listing but it can be considered for the 2006 listing.

Comment 2. - Given that sodium hypochlorite and sodium hydroxide are used in significant quantities for cleanup at the facility, we feel these chemicals should be regulated in the permit.

Response 2. - Sodium hydroxide is already regulated in the permit as a pH limit. Sodium hypochlorite is not used in quantities that hinder the facility's biological Sequencing Batch Reactor (SBR) treatment process. If the hypochlorite was found to be in alarming concentrations, then their treatment process would not be able to treat the wastewater effectively. Furthermore, the treated effluent is pumped to the holding lagoon before making its way into the creek which provides additional time for any residual chlorine to dissipate. The facility is also aware of issues regarding the use of these two chemicals and have taken the initiative to cut back on the use of them whenever possible. Finally, these two chemicals contribute to total dissolved solids which are limited in the permit.

Comment 3. - This potent discharge should be more fully treated. This proposed permit allows too high concentrations of contaminants to enter a system that is significantly stressed.

Response 3. - The Department believes that the Permittee has done an exemplary job of treating their wastewater. This proposed permit provides additional new requirements that were not established in the previous permit. Furthermore, the Department believes this permit provides limitations and requirements in conformance to Washington Administration Codes (WAC) 173-201A and WAC173-200. Again, if you have data which shows that the system is significantly stressed, please submit this information to the Department for our review.